Quiz Results

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Score: 1/10

Question 1: What is the primary responsibility of the Network Layer?

- A. Frame delivery between directly connected nodes
- B. End-to-end packet delivery across multiple hops
- C. Managing application-level communication
- D. Encrypting data for secure transmission

Explanation: The Network Layer handles logical addressing and routing, ensuring packets reach their destination across potentially many networks.

Question 2: Which network service offers guaranteed delivery order and consistent performance but requires initial setup overhead?

- A. Datagram (connectionless)
- B. Virtual Circuit (connection-oriented)
- C. Best-effort delivery
- D. Unreliable datagram

Explanation: Virtual circuits establish a dedicated path before data transfer, ensuring reliable and ordered delivery, unlike datagrams.

Question 3: What is the core principle of Dijkstra's algorithm?

- A. Finding the longest path between nodes
- B. Determining the optimal network topology
- C. Finding the shortest path between nodes
- D. Calculating the bandwidth of a network connection

Explanation: Dijkstra's algorithm iteratively calculates the shortest path from a source node to all other reachable nodes in a network.

Question 4: How does link state routing address the 'count-to-infinity' problem?

- A. By using distance vectors
- B. By distributing the entire network topology
- C. By limiting hop counts
- D. By ignoring failed links

Explanation: Each router having a complete network map allows independent shortest path calculations, avoiding the slow convergence of distance vector routing.

Question 5: Why is hierarchical routing beneficial in large networks?

- A. It increases routing table size
- B. It simplifies network management
- C. It improves scalability by reducing routing table size
- D. It reduces network security

Explanation: Hierarchical routing summarizes routing information for large groups of routers, making tables smaller and more manageable.

Question 6: What is a key advantage of multi-destination routing over sending distinct packets for broadcasting?

- A. Increased bandwidth consumption
- B. Simpler implementation
- C. Conserved bandwidth
- D. Requires knowledge of all destinations

Explanation: Multi-destination routing efficiently creates copies of the packet only when necessary, saving bandwidth compared to sending individual packets.

Question 7: How does Reverse Path Forwarding (RPF) prevent broadcast storms?

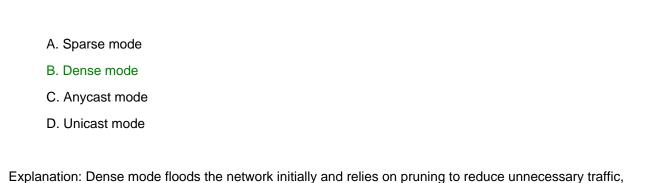
- A. By amplifying broadcast signals
- B. By discarding packets received on the preferred path
- C. By forwarding all received broadcast packets
- D. By discarding packets not received on the preferred path

Explanation: RPF checks if the broadcast packet arrived on the shortest path; if not, it's likely a duplicate and discarded, preventing loops.

Question 8: What is the primary advantage of using a spanning tree for broadcasting?

- A. Increases redundant transmissions
- B. Creates network loops
- C. Ensures each router receives the broadcast exactly once
- D. Complicates network management

Explanation: Spanning trees create a loop-free path for broadcasts, maximizing efficiency and minimizing redundant packets.



Question 9: Which multicast routing method proactively forwards traffic to all interfaces until explicitly pruned?

unlike sparse mode's on-demand forwarding.

Question 10: How do core-based trees address the resource issues associated with pruning in multicast routing?

- A. By increasing the number of trees per router
- B. By using a central core router for each multicast group
- C. By disabling pruning altogether
- D. By increasing multicast traffic

Explanation: Core-based trees simplify multicast management and reduce router resource requirements by creating a shared tree rooted at a core router.